

# First Record of the Paucident Planigale, *Planigale gilesi* (Marsupialia: Dasyuridae), for Victoria.

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## Introduction

The Paucident Planigale, *Planigale gilesi*, (Fig. 1) is a small carnivorous marsupial which occurs in the arid and semi-arid regions of eastern Australia (Fig. 2). The species was first described in 1972, and named in honour of the explorer Ernest Giles, 'the most intrepid of Australian explorers and, like this planigale, an

## Methods

An extensive survey of the vertebrate fauna of the Mallee Area of Victoria, as defined by the Land Conservation Council (LCC, 1987), was conducted during 1985-87 by the National Parks and Wildlife Division, Department of Conservation, Forests and Lands (DCFL). One hundred and twenty permanent survey



Fig. 1. The Paucident Planigale *Planigale gilesi* - first recorded in Victoria in 1985

accomplished survivor in deserts' (Aitken, 1972). Studies of the biology of this species include observations on its ecology (Denny, 1975, 1982); behaviour (Andrew and Settle, 1982); breeding (Whitford et al., 1982; Read, 1984a); movements and home range (Read, 1982; 1984b); diet (Read, 1987); and trappability (Read, 1985).

During a recent survey of the fauna of the mallee region of north-western Victoria, *P. gilesi* was recorded for the first time in this State. We report here on the occurrence of this species in Victoria.

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sites were established and the fauna at these sites was monitored seasonally; additional sites in other areas were surveyed once. The permanent sites were located in order to sample fauna from the range of vegetation communities and land systems present in the area.

At each site, small terrestrial vertebrates were sampled in two ways. Firstly, a pitfall and drift-fence system was installed, comprising 10 buckets (40 cm deep) set in the ground at regular intervals along a 50 m drift-fence of fibreglass flywire mesh (approx. 15 cm high); the pits were not baited. Secondly, at permanent sites only, six cage traps (36 x 20 x 16 cm), six Elliott aluminium traps (10 x 10 x 33 cm) and a

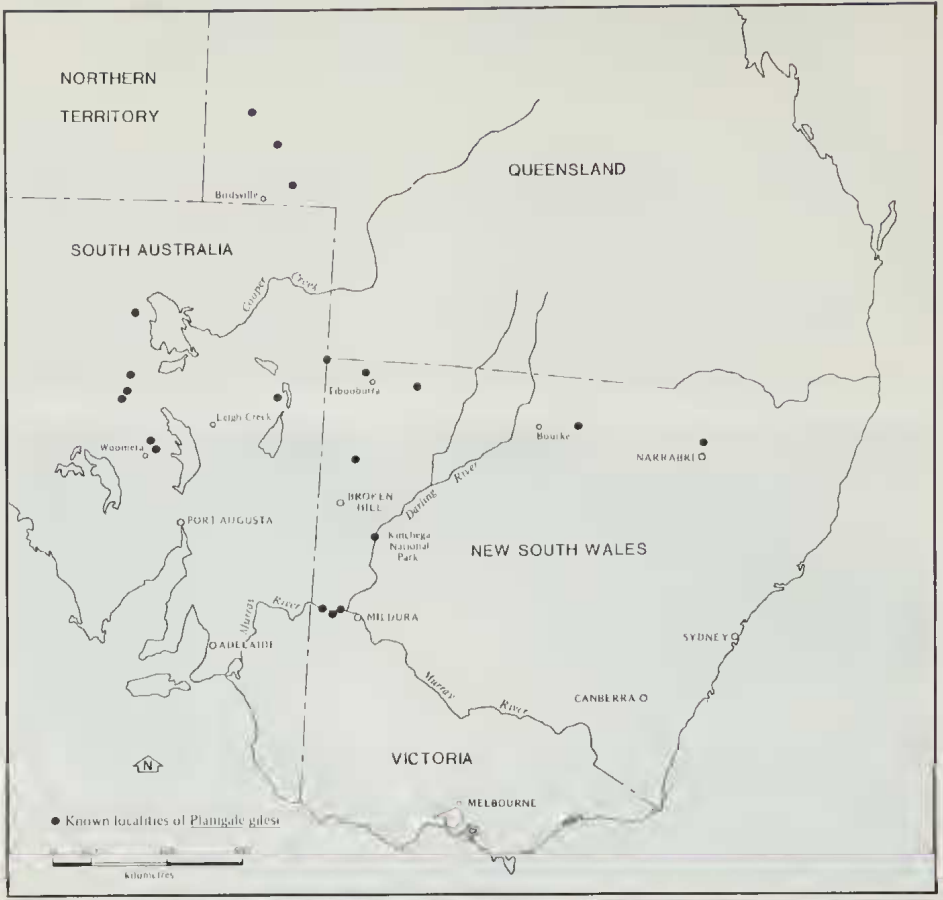


Fig. 2. Known distribution of *Planigale gilesi* in Australia.

funnel trap (30 x 30 x 90 cm) were set along 100 m of drift-fence. These traps were baited with a mixture of rolled oats, peanut butter, honey and sunflower seeds. At permanent sites pitfall traps were open for five consecutive nights during each of five seasonal samples over an 18 month period. At the additional sites, the pitfall traps were open for seven nights. Sampling effort with pitfall traps at each site at which *P. gilesi* was captured is summarised in Table 1.

Vegetation at the permanent sites was assessed by the Public Lands and Forests Division of DCFL, and sites were assigned to one of the floristic vegetation communities described by LCC (1987).

**Results**

During the survey, 13 *P. gilesi* were captured at seven sites in three localities: north of Cullulleraine (sites A and B); Lindsay Island (sites C and D); and Wallpolla Island (sites E,F and G) (Fig. 3). All the sites were on the southeastern edge of the arid zone and receive a mean annual rainfall of less than 250 mm. These sites are subject to infrequent inundation by flood waters.

The location and a description of the vegetation, soil, and other small mammals captured at each site from which *P. gilesi* was recorded in Victoria are given in Table 1. All seven sites were on alluvial flood-

Table 1. Captures and characteristics of capture sites at which *Planigale gilesi* was recorded in north-western Victoria. The soil at all sites was a grey cracking clay.

| Site and Locality     | Habitat   | No. of pitfall trapnights | No. of captures of <i>P. gilesi</i> (captures per 100 pitfall trapnights) | Other small mammals                                     |
|-----------------------|---|---------------------------|---|---|
| Nth. of Cullulleraine |   |                           |   |   |
| A. 34°12'S, 141°35'E  | <i>Eucalyptus largiflorens</i> woodland with large clumps of <i>Muehlenbeckia cunninghamii</i> and <i>Chenopodium nitriariaceum</i> | 250                       | 3 (1.2)   | <i>Sminthopsis crassicaudata</i><br><i>Mus musculus</i> |
| B. 34°12'S, 141°36'E  | Saltbush Shrubland dominated by <i>Atriplex nummularia</i>  | 250                       | 3 (1.2)   | <i>S. crassicaudata</i><br><i>M. musculus</i>           |
| Lindsay Island        |   |                           |   |   |
| C. 34°07'S, 141°12'E  | <i>M. cunninghamii</i> shrubland adjacent to <i>E. largiflorens</i> woodland  | 200                       | 2 (1.0)   | <i>M. musculus</i>                                      |
| D. 34°07'S, 141°11'E  | <i>E. largiflorens</i> woodland with <i>M. cunninghamii</i> and <i>C. nitriariaceum</i>   | 200                       | 2 (1.0)   | <i>M. musculus</i>                                      |
| Wallpolla Island      |   |                           |   |   |
| E. 34°07'S, 141°46'E  | <i>M. cunninghamii</i> shrubland adjacent to <i>E. largiflorens</i> woodland  | 70                        | 1 (1.4)   | <i>M. musculus</i>                                      |
| F. 34°07'S, 141°46'E  | <i>E. largiflorens</i> woodland with sparse <i>M. cunninghamii</i> and shrubs   | 70                        | 1 (1.4)   | <i>M. musculus</i>                                      |
| G. 37°07'S, 141°46'E  | <i>E. largiflorens</i> woodland with <i>M. cunninghamii</i>   | 70                        | 1 (1.4)   | <i>M. musculus</i>                                      |

plains with grey cracking clay soils, and within several kilometres of the Murray River. Six sites were in Black Box Chenopod Woodland (Fig. 4), and the seventh was in nearby Alluvial Plain Shrubland (see LCC, 1987 for full floristic descriptions of these vegetation communities). Vegetation at the sites of capture consisted of patchy, but dense, ground cover dominated by Tangled Lignum *Muehlenbeckia cunninghamii*, Nitre Goosefoot *Chenopodium nitriariaceum* or Old-man Saltbush *Atriplex nummularia*.

Details of the sex, age and weight, and some other measurements of the 13 animals captured are presented in Table 2, with specimen numbers (Museum of Victoria) for those individuals retained. Captures were predominantly of males (11 individuals), and nine animals (including both females) were considered to be sub-

adults. *P. gilesi* were caught during all seasons of the year, but sub-adults were recorded only in February, March and June. There was considerable variation in weather conditions at the times when *P. gilesi* was captured. Overnight minimum temperatures ranged from 0 to 14°C, and rain, cloud cover and phase of the moon varied markedly.

All of the *P. gilesi* were caught in pitfall traps, despite a survey effort of 276 cage, 276 Elliott and 46 funnel trap-nights conducted at the same sites. The mean capture rate (at sites where *P. gilesi* was recorded) was low (1.2 captures per 100 pitfall trap-nights, where one pitfall trap-night equals one pit open for one night). Other small mammals trapped at the sites were the Fat-tailed Dunnart *Sminthopsis crassicaudata* and the introduced House Mouse *Mus musculus* (Table 1).

Table 2. Details of individual *Planigale gilesi* captured in north-western Victoria.

| Date of Capture                          | Site<br>(see<br>Fig.1) | Weight<br>(g) | Total<br>Length | Measurements (mm) |          | Scrotal<br>Width | Museum<br>Specimen<br>Number |
|--|------------------------|---------------|-----------------|-------------------|----------|------------------|------------------------------|
|  |                        |               |                 | Tail              | Hindfoot |                  |                              |
| Males (adult)                            |                        |               |                 |                   |          |                  |                              |
| 14.11.85                                 | A                      | 12            | 148             | 65                | 11       | 8                | C27302                       |
| 17.11.85                                 | A                      | 9             | 125             | 59                | 12       | 10               | C27300                       |
| 18.10.86                                 | B                      | 10.8          |                 |                   |          | 10               |                              |
| 22.02.87                                 | A                      | 9.2           |                 | 62                | 11       | 10               |                              |
| Males (subadult)                         |                        |               |                 |                   |          |                  |                              |
| 19.02.86                                 | C                      | 5.5           | 118             | 63                | 11       | 4                | C27301                       |
| 20.02.86                                 | D                      | 5.2           |                 |                   |          |                  |                              |
| 23.02.86                                 | B                      | 6.0           |                 |                   |          | 4                |                              |
| 21.06.86                                 | B                      | 6.3           | 121             | 62                | 10       | 9                | C27303                       |
| 23.06.86                                 | D                      | 5.8           |                 |                   |          | 8                |                              |
| 25.03.87                                 | F                      | 5.0           | 112             | 52                | 10       | 4                |                              |
| 26.03.87                                 | G                      | 6.0           | 124             | 59                | 10       | 5                |                              |
| Females (subadult<br>-undeveloped pouch) |                        |               |                 |                   |          |                  |                              |
| 21.02.87                                 | C                      | 5.8           |                 | 54                | 11       |                  |                              |
| 25.03.87                                 | E                      | 5.4           | 122             | 58                | 11       |                  |                              |

## Discussion

The capture of *P. gilesi* in north-western Victoria extends the known range of this species some 200 km further south than the previous southernmost record at Kinchega National Park, NSW (Fig. 2). Throughout its range in arid and semi-arid areas of eastern Australia, *P. gilesi* appears to occur mainly in the more mesic areas, such as the floodplains of creeks and swamps, beside lakes and bore drains, and in interdune areas (Denny, 1982). Andrew and Settle (1982) have demonstrated a close relationship between the occurrence of *P. gilesi* and the presence of grey, brown and red clay soils which are characterised by their deep cracks and gilgai formations. These soil types are widespread in inland eastern Australia (see map in Andrew and Settle, 1982) and include a continuous band from the Murray River along the Darling River to Kinchega National Park.

These recent records of *P. gilesi* from Victoria also conform to this distributional pattern. Individuals were captured only on alluvial floodplains adjacent to the Murray River on grey, cracking clay soils. *P. gilesi* was not caught at adjacent sites which had different soil types or vegetation

communities, (e.g. River Red Gum Forests, which have a predominantly grassy understorey; and Alluvial Rise Shrubland). The floodplains of the Murray River downstream of its junction with the Darling River may constitute the entire range of this species in Victoria; no *P. gilesi* were caught at two comparable sites located in similar habitat further upstream, at Liparoo State Forest (Fig. 3).

Cracks in the clay soil appear to be an important feature of the habitat for *P. gilesi* (Read, 1983) because they provide protection from extremes of temperature and from predators. The flattened body form and the oblique movement of the limbs of this species allow access to narrow spaces. The clumped dense understorey would also offer *P. gilesi* some protection from predators (Aitken, 1972).

At Fowlers Gap, NSW, *P. gilesi* has an extended, but seasonal, breeding period from July to January, and juveniles and sub-adults have been recorded from November to June (Read, 1984a). Juveniles take 5-6 months to reach adult proportions (Whitford et al., 1982). In Victoria, sub-adults were trapped during February, March and June, which is consistent with

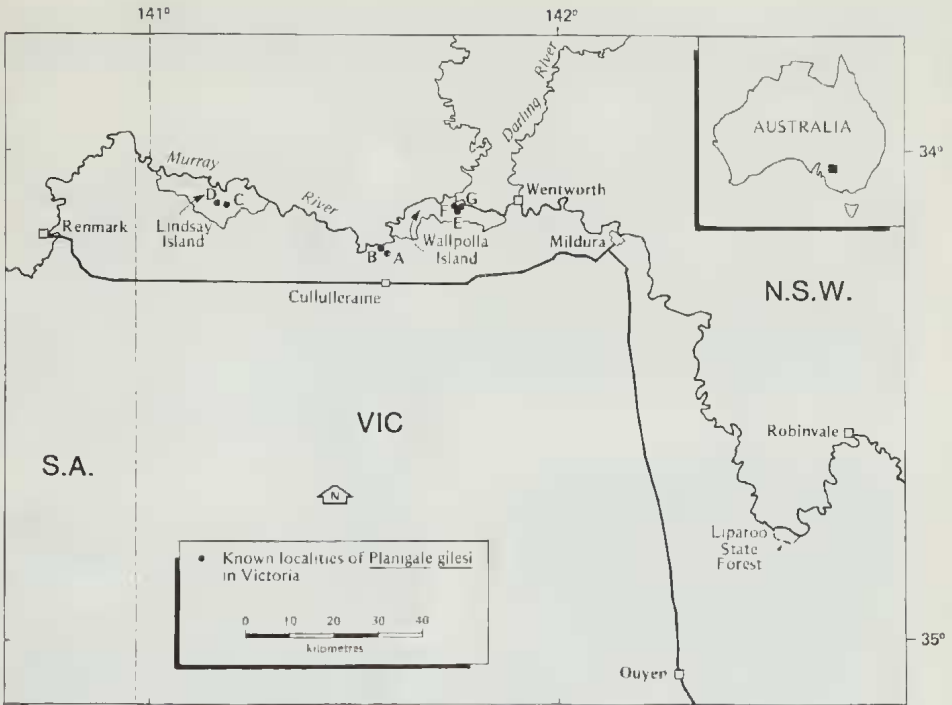


Fig. 3. Known occurrences of *Planigale gilesi* in Victoria.



Fig. 4. Black Box Chenopod Woodland with understorey of Tangled Lignum - habitat of *Planigale gilesi*. The pitfall trapline can be seen in the centre of this photograph.

the breeding season recorded by Read (1984a). Scrotal development of males (Table 2) follows the pattern found by Read (1984a).

The skewed sex ratio observed in *P. gilesi* in the present study may reflect different movements by males and females. Read (1984b), who also caught significantly more males than females, found that although individuals of both sexes had shifting home ranges, on average, males tended to have moved greater distances than females between captures. Males may therefore be more likely to encounter traps than are females.

During this survey *P. gilesi* was caught only in pitfall traps. Others (Aitken, 1972; Denny, 1975; Read, 1985) have caught *P. gilesi* in Elliott traps, but these are not as reliable as pitfall traps for detecting this species (Read, 1985). Success rates with pitfall traps in Victoria are comparable to those obtained by Read (1985).

*P. gilesi* was trapped when overnight minimum temperatures ranged from 0-14°C; in contrast Andrew and Settle (1982) trapped *P. gilesi* only when overnight temperatures were above 19.8°C. Denny (1982) found that during winter, *P. gilesi* were active during the day, and rarely active at night. Hence, it is possible that in this study *P. gilesi* may have been captured while active during the day when maximum temperatures were above 14°C.

None of the localities from which *P. gilesi* has been recorded in north-western Victoria are within a conservation reserve. The area north of Cullulleraine is uncommitted public land, and Lindsay Island and Wallpolla Island are presently zoned for hardwood production (LCC, 1977). Timber harvesting in these areas is primarily in River Red Gum forests, but Black Box woodlands have been selectively logged in the past, and the commercial collection of firewood continues. All three localities are grazed by domestic stock. The effects of these practices on populations of *P. gilesi* are not known. Land use in the mallee region is currently under review (LCC,

1987) and consideration should be given to the conservation of this small marsupial.

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## Southern Bottle-nose Whales (*Hyperoodon planifrons*) seen off Wollongong, NSW

BY MILTON LEWIS\*

On the 30 February 1988, about 29 kilometres ENE of Wollongong NSW (34°19'53"S, 151°12'23"E) in a depth of 85 metres, two groups of Southern Bottle-nosed Whales *Hyperoodon planifrons* were sighted.

At 1100 hours, the first group, containing two adults and a calf were seen spouting and moving in a general southerly direction. As the vessel approached within about 200 metres they dived for a period of three minutes to again surface about 700 metres south of our position. They continued this sequence another three times with dive periods of two-three minutes.

The second group was encountered at 1130 hours in close proximity to the first, which at this stage had dived from view. We did not directly approach this group, but positioned the vessel within their oncoming path and waited until they came to us. This method was very effective, with the group of eight surfacing about 20 metres away. During observation, the group stayed close together, milling around the same area for about four minutes, repeatedly diving just beneath the surface. From the behaviour exhibited by these individuals we concluded that they were actively feeding, which resulted in very clear views of all the body.

Animals observed in the second group were six to eight metres in total length. The melon of the head was well developed in all individuals and covered in large white scars. Head colour was glaucous (Smithe 1975, colour 80), turning to pale neutral grey (Smithe 1975, colour 86), over the dorsal surface of the body. Ventrally the body was much paler. The dorsal fin was very pronounced and placed about two-thirds back along the body. Some individuals had heavily curved dorsal fins. The beak was well pronounced in all the individuals, giving them a very bottlenosed appearance. When spouting, the blow was anteriorly directed at an angle of about 40°. The heavy melon head and pronounced scars probably shows that this was a herd of male Southern Bottle-nosed Whales (Watson 1981).

The Bottle-nosed Whale is rare in Australia, having been recorded from only four strandings (Baker, 1983). Watson (1981) goes further, classifying this species as rare over its entire range. To the best of my knowledge this situation has not changed.

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